**INVENTORY CONTROL SYSTEM**

**Home Page Design (Frontend)**

1. **Top Navigation Bar:**
   * **Left Section:**
     + Brand logo positioned at the far left.
     + The logo should be clickable and redirect to the home page.
   * **Right Section:**
     + Login and Signup buttons displayed when no user is logged in.
     + Logout button displayed when a user is logged in.
     + Proper spacing and alignment between buttons for a clean layout.
2. **Dynamic Button Display:**
   * **Login & Signup (Before Authentication):**
     + Login button triggers a popup for user authentication.
     + Signup button triggers a popup for user registration.
   * **Logout (After Authentication):**
     + Logout button triggers a confirmation popup and clears the session.
     + On logout, the system navigates back to the home page, and Login/Signup buttons reappear.
3. **Main Content Section:**
   * **Display key features or shortcuts to essential modules, such as:**
     + Stock Management
     + Invoice Generation
     + Reports
   * **Dynamic content visibility based on user roles (Administrator or Normal User).**
4. **Styling Recommendations:**
   * **Use a responsive grid layout for smooth adaptation across devices.**
   * **Angular Material components for a consistent and visually appealing UI.**
   * **Minimalistic colour scheme focusing on usability and aesthetics.**

**Backend Design (Java Servlets)**

**1. Servlet Components:**

* **AuthenticationServlet:** Handles user login and session management.
* **UserManagementServlet:** Handles requests for adding, updating, deleting, and fetching user data.
* **ClientManagementServlet:** Manages CRUD operations for clients.
* **VendorManagementServlet:** Manages CRUD operations for vendor information.
* **StockManagementServlet:** Handles inventory-related operations, such as stock addition and updates.
* **InvoiceServlet:** Manages invoice generation and retrieval.
* **ReportServlet:** Generates stock and invoice reports.

**2. Business Logic Layer:**

* Helper classes to encapsulate logic for business operations (e.g., stock updates, report generation).

**3. Request Handling:**

* Use GET and POST methods for data retrieval and updates.
* Validate inputs at the servlet level for security and data integrity.

**4. Session Management:**

* Manage user sessions using HttpSession.
* Ensure secure logout by invalidating sessions.

**Database Design**

**1. Tables:**

* **Users:** (id, username, password, role)
* **Clients:** (client\_id, name, contact\_details)
* **Vendors:** (vendor\_id, name, contact\_person, address, phone, products\_supplied)
* **Stock:** (product\_id, product\_name, quantity, rate, received\_date)
* **Invoices:** (invoice\_id, product\_details, date\_of\_sale, unit\_price, total\_amount, payment\_details)